



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/543,151 | 04/18/2006 | Kenji Watanabe | 052886 | 2634 |
| 38834 7590 08/25/2008 WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP 1250 CONNECTICUT AVENUE, NW SUITE 700 WASHINGTON, DC 20036 | | | | |
| EXAMINER | | | | |
| NGUYEN, KIET TUAN | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 2881 | | | | |
| MAIL DATE | | DELIVERY MODE | | |
| 08/25/2008 | | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/543,151

Applicant(s)

WATANABE ET AL.

Examiner

Kiet T. Nguyen

Art Unit

2881

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 and 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-10 and 12-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date 7/25/05, 12/23/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: _____

Applicant's election without traverse of Group II including claims 6-10 and 12-15 in the reply filed on 08-01-2008 is acknowledged.

Applicant therefore is requested to cancel the non-elected claims 1-5 and 11.

Rejection Under 35 U.S.C. 102(a & b)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6-9 and 12-15 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Stewart et al. (6,979,822).

Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Veneklasen et al. (6,586,733).

Veneklasen et al. (6,586,733) discloses, in figs. 1-6b, an electron beam apparatus for inspecting a sample. The apparatus includes an electron beam source 8 for producing a primary electron beam 7; an electron beam source 10 for producing an electron beam 12 having an energy level of 2 to 4 keV (see col. 7, lines 1-5); a sample 9 placed in a sample chamber; a detector 20 for detecting secondary electrons; and means for supplying a gas to neutral charge-up on the sample surface (see col. 9, lines 17-42).

Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by Madonado et al. (6,465,795).

Madonado et al. (6,465,795) discloses, in figs. 1-6, an electron beam apparatus for inspecting a semiconductor substrate. The apparatus includes an electron beam 115 for evaluating a surface of the semiconductor substrate 100; and a plurality of baffles 602 and a stack of annular rings 604, which form a cover for covering the substrate 100 and having at least one gas inlet 305 for supplying a gas to cover and to neutralize the substrate surface at the pressure in a range of 0.01 to 0.1 Pa (see col. 4, lines 16-54).

Rejection Under 35 U.S.C. 103(a)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veneklasen et al. (6,586,733) in view of Madonado et al. (6,465,795).

Veneklasen et al. (6,586,733) discloses all the features as discussed above except a cover for covering the sample and having at least one gas inlet as recited in claim 7; and a carbon nanotube-type cold cathode electron source as recited in claim 10.

As stated above, Madonado et al. (6,465,795) discloses, in figs. 1-6, an electron beam apparatus for inspecting a semiconductor substrate. The apparatus includes gas supply means having a plurality of baffles 602 and a stack of annular rings 604, which form a cover for covering the substrate 100 and having at least one gas inlet 305 for supplying a gas to cover and to neutralize the substrate surface. Therefore, it would have been obvious to one skilled in the art to use the gas supply means in the Veneklasen et al. (6,586,733) electron beam apparatus to supply the gas for neutralizing the sample surface.

Using the carbon nanotube-type cold cathode electron source is considered to be obvious variation in design, since it is well known in the art to use the carbon nanotube-type cold cathode electron source as disclosed in the Zhu et al. "Large Current Density from Carbon Nanotube Field Emitters", thus would have been obvious to one skilled in the art to use the carbon nanotube-type cold cathode electron source in the Veneklasen et al. (6,586,733) electron beam apparatus for neutralizing the sample surface.

Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Madonado et al. (6,465,795) in view of Veneklasen et al. (6,586,733).

Madonado et al. (6,465,795) discloses all the features as discussed above except the gas being one selected from a group comprised of nitrogen, water vapor, a

halogen gas and a chemical compound as recited in claim 13; and an electron source other than the primary electron beam source for irradiating the sample as recited in claim 14.

As stated above, Veneklasen et al. (6,586,733) discloses, in figs. 1-6b, an electron beam apparatus for inspecting a sample. The apparatus includes an electron beam source 8 for producing a primary electron beam 7 to evaluate the sample; and an electron beam source 10 for producing an electron beam 12 to irradiate the sample. Therefore, it would have been obvious to one skilled in the art to use the second electron beam source in the Madonado et al. (6,465,795) electron beam apparatus for neutralizing the sample surface. Since, using the second electron beam source in an electron beam apparatus is well known in the art to irradiate the sample with the second electron beam.

Using the gas selected from a group comprised of nitrogen, water vapor, a halogen gas and a chemical compound is considered to be obvious variation in design, since it is well known in the art to use the gas selected from a group comprised of nitrogen, water vapor, a halogen gas and a chemical compound as disclosed in the Stewart et al. (6,979,822) (see col. 9, lines 39-45), thus would have been obvious to one skilled in the art to use the gas selected from a group comprised of nitrogen, water vapor, a halogen gas and a chemical compound in the Madonado et al. (6,465,795) electron beam apparatus for neutralizing the sample surface.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1) Adler et al. (6,087,659) discloses an electron beam apparatus using one of two electron beams and a gas for neutralizing a surface of a sample.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiet T. Nguyen whose telephone number is 571-272-2479. The examiner can normally be reached on Monday-Friday 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Kiet T. Nguyen/
Primary Examiner, Art Unit 2881